

Stray Creek Vegetation

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Relevant Laws, Regulations, and Policy

Regulatory Framework

Forest Plan

The Clearwater National Forest Plan provides goals and objectives for the management of the Forest resource. Specific Forest Plan goals and objectives that apply to vegetation management in the Stray Creek area are:

- Provide a sustained yield of resource outputs that will help support the economic structure of local communities and provide for regional and national needs
- Provide and maintain a diversity and quality of habitat to support viable populations of native and desirable non-native wildlife species
- Protect resource values through cost-effective fire and fuels management, emphasizing fuel treatment through the utilization of material and using prescribed fire
- Protect resource values through the practice of integrated pest management
- Final determination of the silvicultural system to be used will be based upon a site specific silvicultural system.

Management Areas

Forest Plan Management Areas (MAs) are designations to distinguish differing management emphases between geographic areas, and contain general guidelines, goals, and standards for the management of forest vegetation within these areas. Management Areas and their goals and standards are set in the Clearwater Forest Plan.

The entire analysis area lies within MA E1, which is Timber.

Federal Law & Regulations and Forest Service Policies & Guidelines

National Forest Management Act (NFMA)

The National Forest Management Act of 1976 (NFMA) contains guidelines for timber management and silvicultural prescriptions, which are listed below.

Timber harvest will occur only where: (NFMA, Section 6: parts E and F)

- (i) soil, slope, or other watershed conditions will not be irreversibly damaged;
- (ii) there is assurance that such lands can be adequately restocked within five years after harvest;
- (iii) protection is provided for streams, stream-banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat; and

- (iv) the harvesting system to be used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber.

Where regeneration harvests are planned:

- (i) for clearcutting, it is determined to be the optimum method, and for other such cuts it is determined to be appropriate, to meet the objectives and requirements of the relevant land management plan;
- (ii) the interdisciplinary review as determined by the Secretary has been completed, and the potential, environmental, biological, aesthetic, engineering, and economic impacts on each advertised sale area have been assessed, as well as the consistency of the sale with the multiple use of the general area;
- (iii) cut blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain;
- (iv) there are, established according to geographic areas, forest types, or other suitable classifications, the maximum size limits for areas to be cut in one harvest operation, including provision to exceed the established limits after appropriate public notice and review by the responsible Forest Service officer one level above the Forest Service officer who normally would approve the harvest proposal: Provided, That such limits shall not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm; and
- (v) such cuts are carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources, and the regeneration of the timber resource.

When timber is to be harvested using an even-aged management system, a determination that the system is appropriate to meet the objectives and requirements of the Forest Plan must be made, and, where clearcutting is used, it must be determined to be the optimum method (16 U.S.C. 1604(g)(3)(F)(i)).

Knutson-Vandenberg Act

Knutson-Vandenberg Act of 1930 (46 Stat. 527, as amended; 16 U.S.C. 576 - 576b) authorizes the Secretary of Agriculture to "...establish forest tree nurseries and do all other things needful in preparation for planting on national forests..." and requires the "purchaser of national forest timber to make deposits of money ...to cover the cost ...of planting, sowing with tree seeds, cutting, destroying, or otherwise removing undesirable trees or other growth and protecting and improving the future productivity of renewable resources..."

Multiple-Use Sustained-Yield Act

Multiple-Use Sustained-Yield Act of 1960 (Pub. L. 86-517, 74 Stat. 215; 16 U.S.C. 528-531) authorizes and directs the Secretary of Agriculture "...to develop and administer the renewable surface resources of the national forests for multiple use and sustained yield of the several products and services obtained therefrom..."

Forest Service Manual (FSM)

FSM 2020 provides foundational policy for using ecological *restoration*¹ to manage NFS lands in a *sustainable*² manner. The aim is to reestablish and retain ecological *resilience*³ of NFS lands and

¹ The process of assisting the recovery of resilience and adaptive capacity of ecosystems that have been degraded, damaged, or destroyed. Restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to make terrestrial and aquatic ecosystems sustainable, resilient, and healthy under current and future conditions (FSM 2020.5).

associated resources to achieve sustainable management and provide a broad range of *ecosystem services*⁴. Healthy, resilient landscapes would have greater capacity to survive natural disturbances and large-scale threats to sustainability, especially under changing and uncertain future environmental conditions, such as those driven by climate change and increasing human uses (FSM 2020.20).

FSM 2470 provides broad policy guidance for silvicultural practices on the national and regional levels (U.S. Department of Agriculture, 2002). Sections pertinent to the Tinker Bugs proposal include harvesting, reforestation, stand improvement, sale area improvement deposits, examinations, prescriptions, and evaluations. Regional supplements include reforestation and timber stand improvement policies.

Silvicultural Practices Handbook

FSH 2409.17 provides more detail than the manuals for its specific area of concern (USDA, n.d.). This handbook also contains reference information related to reforestation, seed, and Knutson-Vandenburg Fund management. Regional supplements provide additional, specific guidance.

Other Guidance or Recommendations: Openings Larger Than 40 Acres

Direction in Forest Service Manual 2470, Region 1 Supplement #R1 2400-2016-1, Section 2471.1 states that the size of openings created by even-aged silvicultural treatments in the Northern Rockies will normally be 40 acres or less, with certain exceptions. The 40-acre opening documentation will be available in the project record as the Regional Forester approves.

Existing Conditions

Existing Vegetation

The Stray Creek Project Area stands are predominately grand fir or grand fir/Douglas-fir mix (table 1), 45% of which has a DBH that is greater than or equal to 15 inches (table 2). Both species are highly susceptible to root disease, which can prevent stands from obtaining old growth structure due to continuing mortality. Approximately 33% of the project area is in the 10-14.9" diameter range (according to VMAP—field observations were that trees were on the larger end of this size class). Crown ratios within the stands ranged from 30% or less in the smaller diameter size class and 30-45% in the larger diameter size class.

The understory in the 10-14.9" diameter class is non-existent, except where gaps in the canopy exist. Forbs include queen's cup beadlily, western goldentthread, wild ginger and others. In the 15-20" diameter range, the understory was more varied due to more gaps in the canopy and wider spacing between the trees. Various forbs, grasses and shrubs were observed, including snowberry and the aforementioned forbs.

Insects and Disease

Evidence of root disease was found throughout the project area, including conks of known root diseases, butt swelling and pockets of dead and dying trees. Windthrown trees were also observed throughout

² Meeting needs of the present generation without compromising the ability of future generation to meet their needs (FSM 2020.5) Sustainability is composed of desirable social, economic, and ecological condition or trends interacting at varying spatial and temporal scales, embodying the principles of multiple-use and sustained-yield (FSM 1905).

³ The capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks (FSM 2020.5).

⁴ Benefits people obtain from ecosystems (FSM 2020.5).

the project area; most likely as a result of root disease. Stands in the larger sizes classes showed more obvious signs of root disease.

Some fir engraver galleries were found in standing dead trees within the project area, along with a few signs of recent ambrosia beetle activity.

Table 1. Species composition across Stray Creek Project Area from R01 VMAP.

Species	Acres	Percent of Project Area
ABGR/ABGR MIX	586	70%
TMIX	146	17%
PIPO	77	9%
THPL	29	4%

Table 2. Tree size across the project area from R1 VMAP.

Size Class (DBH)	% of Project Area
5-9.9"	20%
10-14.9 "	33%
15-20"	45%

Proposed Silvicultural Treatment

Within the project area, if a stand is 70% or more grand fir or grand fir/Douglas-fir mix and shows obvious signs of root disease (windthrow, conks, etc), then the stand would be a candidate for a regeneration harvest. Retention within these stands would be dependent upon other resource needs and could include patches or clumps for wildlife, soils or visuals as needed. Any leave patches would be scaled to the landscape and would be a minimum of 5 acres.

Recommended levels of reserves within regeneration harvest units would be up to 10% of total stand stocking levels that are determined by habitat type. Leave tree designations and buffers would be implemented where necessary to meet wildlife needs, and would be determined by the wildlife biologist and silviculturist.

Planting in these stands would focus on restoring early seral species, which are currently lacking within the project area. A mix of ponderosa pine on the drier sites and ridges with western larch and white pine in the moist sites. These species are not as susceptible to the root disease currently found within the stand. By removing susceptible species and planting resistant species, the spread of root disease can be limited and stands have an improved chance to reach the ages required for old growth. Treatment recommendations for stands with root disease include regeneration harvests and planting of more root-disease-tolerant species such as western larch, ponderosa pine or western white pine (S. Hagle, 2004).

If a stand has less than 70% grand fir or grand fir/Douglas-fir mix and contains early seral species (western larch, ponderosa pine, western white pine), then it would be a candidate for an intermediate treatment. The healthy, well-formed early seral species would be left upon the landscape, along with additional trees of other species as need to maintain a fully stocked stand.

If a stand contains 25% cedar and is in a moist, wet habitat site, then stand is a candidate for a leave patch.

All activity fuels would be treated, including in intermediate treatment areas. Fuel treatment options include tractor or hand piles or a prescribed burn that covers the majority of the unit. Prior to planting, existing and activity fuels would be burned (or piled and burned) for site preparation. If appropriate, some piles could remain upon the landscape for wildlife habitat. Landing areas would be treated for noxious weeds, with the potential for larger units to receive weed treatments if needed.

Table 3. Direct and Indirect Effects for the Proposed Action

Resource Element	Resource Indicator	Measure	Proposed Action Direct/Indirect Effects
Forest Cover Type	Tree Species	Percent of forest dominated by distinct tree species mix.	-Percentage of shade-tolerant, late-seral species reduced (grand fir, Douglas-fir) - Percentage of early-seral species increased (pines and larch) -Create natural patch sizes mimicking mixed severity wildfire
Diameter Distribution	Tree Sizes	Percent of forest dominated by distinct tree size classes.	-Regeneration treatments would lead to increased seedlings/saplings in treated areas - Treatments would create a more heterogeneous landscape
Forest Health	Insect and Disease	Insect and Disease presence and extent	-Insect and disease resilience increased by decreasing susceptible species -Insect and disease prevalence and extent minimized

The proposed action would move the Stray Creek project area toward the desired conditions by removing root-rot susceptible species and restoring early seral species that have a higher resistance to root rot (Table 4).

Table 4. Table showing how the proposed action meets the purpose and need.

Purpose and Need	Indicator/Measure	Proposed Action
Restore species composition to early seral, shade-intolerant species	-Tree species	425 acres converted to early seral species (pines, larch)

Purpose and Need	Indicator/Measure	Proposed Action
Reduce disease within the stands	-Insects and Disease	Dead and dying trees removed, and area planted with root-disease-resistant species

Table 5. Summary of environmental effects to vegetation resources.

Resource Element	Indicator	No Action	Proposed Action
Forest Cover Type	Tree Species	-Late-seral species dominating canopy -early-seral species decrease across project area	-Percentage of shade-tolerant species reduced. - Percentage of early-seral species increased. -Create natural patch sizes mimicking mixed severity wildfire
Diameter Distribution	Tree Sizes	-Limited smaller size classes -little-to-no regeneration -homogenous structure leading to high risk of a stand replacing event from a wildfire or insects/disease	-Regeneration treatments would lead to increased seedlings/saplings in treated areas - Treatments would create a more heterogeneous landscape, reducing risk of a stand-replacing event
Forest Health	Insect and Disease	-low tree vigor -Increase in root disease -increased risk of fir engraver	-Individual tree vigor promoted -Insect and disease resilience increased -Insect and disease prevalence and extent minimized

Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

Forest Plan

Timber

- Silvicultural prescriptions will be site-specific and will be designed to maintain stocking control density commensurate with level of management intensity
- Old growth stands within the project area are being managed for snag and old-growth dependent species.

Old Growth

No old growth is being proposed for harvest; therefore there will be no change in acres managed for old growth within the Old Growth Unit (OGU) that contains the project area. OGU 107 currently has 9.5% existing old growth and 18% step-down, which is well above the forest plan standard of 5% old growth within each OGU.

Management Area

The Stray Creek project proposal is consistent with MA goals and standards outlined by the Clearwater National Forest Plan. Areas identified as treatment areas will comply with the appropriate MA guidance (see table 3).

Table 6. Management Area goals and standards for the Stray Creek Project Area.

Management Area Goals	Timber Standards
E1 —provide optimum, sustain production of wood products. Timber production is to be cost effective and provide adequate protection of soil and water quality. Manage viable elk populations within areas of historic elk use based on physiological and ecological needs. Maintain a range of water quality and fish habitat potential from high fishable in several of the key anadromous and resident fish streams to a low fishable in the Palouse District and portions of the Pierce District.	<ul style="list-style-type: none">- Schedule timber harvest using logging and silvicultural methods appropriate for the stand and the terrain.- Maintain stocking control commensurate with the level of management intensity.- Identify and maintain suitable old-growth stands and replacement habitats for snag and old-growth dependent wildlife species

National Forest Management Act

The Stray Creek project has been reviewed, and is in compliance with all silvicultural requirements in NFMA.

The Stray Creek project would be in compliance with the requirement in NFMA that regeneration harvest areas will be adequately restocked within five years after harvest. Past reforestation practices in the project area have proven to be successful on a wide variety of sites using a variety of silvicultural systems. This past regeneration success provides a good assurance of successful restocking within five years for this project. All harvest and planting treatments are followed up with reforestation stocking surveys after treatment, to ensure adequate restocking is achieved.

According to NFMA, when timber is to be harvested using an even-aged management system, a determination that the system is appropriate to meet the objectives and requirements of the Forest Plan must be made, and, where clearcutting is used, it must be determined to be the optimum method. All even-aged management proposed in the Stray Creek project is appropriate to meet the objectives and requirements of the Forest Plan. Silvicultural prescriptions will be written during implementation, and will address site-specific needs in the stand.

Forest Service Manual

The Stray Creek project has been reviewed, and is in compliance with the guidance issued for silvicultural systems in the Forest Service manual.

When timber production is emphasized in forest plans, the Forest Service Manual states that silvicultural practices will ensure that stands achieve and maintain the level of stocking, species composition, and structure best-suited to meeting short- and long-term management objectives, including those addressing volume growth and yield.

When other resources are emphasized along with timber production, it is important that stocking, species composition, and stand structure are identified to meet short- and long-term resource management objectives and be implementable and sustainable considering concepts of disturbance and forest ecology. Modification of desired stand composition and structure conditions should be done to compliment landscape-level desired composition, structure, and function objectives.

Openings over 40 acres

Direction in Forest Service Manual 2470, Region 1 Supplement #R1 2400-2016-1, Section 2471.1 states that the size of openings created by even-aged silvicultural treatments in the Northern Rockies will normally be 40 acres or less, with certain exceptions. The request to exceed 40-acre openings documentation will be available in the project record once the public has been notified and the Regional Forest has approved.

References Cited

Hagle, S. (2004). Management guide for root disease.